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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,791	08/16/2002	Boris A. Movchan	13DV-13975	4089
30952	7590	11/04/2003	EXAMINER	
HARTMAN AND HARTMAN, P.C. 552 EAST 700 NORTH VAIPARAISO, IN 46383			VO. HAI	
			ART UNIT	PAPER NUMBER
			1771	

DATE MAILED: 11/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/064,791

Applicant(s)

MOVCHAN ET AL.

Examiner

Hai Vo

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) 1-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
* Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

References Cited (PTO-892)

Person's Patent Drawing Review (PTO-948)

Pre Statement(s) (PTO-1449) Paper No(s) 0918.

4) ☐ Interview Summary (PTO-413) Paper No(s). _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-25 drawn to a method of making a thermal barrier coating, classified in class 427, subclass various.
- II. Claims 26-33 drawn to a thermal barrier coating, classified in class 428, subclass 304.4+.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made.

The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the process as claimed can be used to make other and materially different product such as one wherein the thermal barrier coating has both carbides and carbon deposited into the pores instead.

2. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.
3. During a telephone conversation with Domenica N. Hartman on 10/25/2003 a provisional election was made with traverse to prosecute the invention of Group II, claims 26-38. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-25 are withdrawn from further

consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 26-38 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent No. US 6,492,038. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons. Claims 1-12 of US 6,492,038 disclose each and every element of the presently subject matter except an element carbon or an insoluble gas being deposited within the pores. However, it appears that US 6,492,038 and Applicants are using the same materials and the same process to produce the thermal barrier coating (TBC), i.e., evaporation of the TBC ingot and incorporating an insoluble gas into the TBC during deposition of the TBC or during a post deposition process (US 6,492,038, column 5, lines 55-60, and column 6, lines 5-20 vs. Applicants specification,

[0028]). It is the examiner's position that the deposition of the element carbon and the insoluble gas within the pores of the TBC would be inherently present.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 26-38 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ridley et al (US 6,492,038). The same reasons set forth in the paragraph no. 5 are believed to be pertinent.
9. Claims 26, 28, 29, and 31-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima et al (US 6,042,951) in view of Jaslier et al (US 6,251,504). Kojima teaches a ceramic coated blade of a gas turbine comprising a MCrAlY bond coat, a ceramic layer having a columnar microstructure (abstract, table 1). Kojima does not specifically disclose the ceramic layer having the

columnar microstructure with the pores between the columns. However, such porosity is well-known in the art because US 5,512,382 is relied on as evidence to show that the yttria stabilized zirconia thermal barrier coating is typically deposited by the EBPVD to have open pores (figure, column 3, lines 40-45). Kojima does not specifically disclose the ceramic layer having the pores filled with an insoluble gas. Jaslier discloses a ceramic heat barrier coating being subjected to a reactive polluting gas such as carbon oxides during the deposition to produce a ceramic coating having a lower thermal conductivity (abstract, column 7, lines 30-40 and 55-60). It appears that Kojima as modified by Jaslier is using the same process to form the thermal barrier coating as Applicants, i.e., incorporation of insoluble gas into the TBC during the EBPVD of the TBC. It is not seen that the pores of the ceramic layer would have been unfilled with the insoluble gas. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the reactive gas into the ceramic layer during the EBPVD of the ceramic layer motivated by the desire to produce the ceramic TBC having a lower thermal conductivity.

Jaslier does not specifically disclose the porosity of the ceramic layer. Since the porosity is recognized as a result-effective variable, differences in porosity will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such porosity is critical or provides unexpected results. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the ceramic

layer having the porosity instantly claimed motivated by the desire to lower the thermal conductivity of the ceramic layer without significantly affecting its mechanical strength. *In re Aller*, 105 USPQ 233 which holds discovering the optimum or workable ranges involves only routine skill in the art.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (703) 605-4426. The examiner can normally be reached on M,T,Th, F, 8:30-6:00 and on alternating Wednesdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (703) 308-2414. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

HV

DANIEL ZIRKER
PRIMARY EXAMINER
GROUP 1900
1700

Daniel Zinker